

CLAIMS:

1. A vehicle display device, which device comprises:
an optically transparent laminated windshield having inner and outer juxtaposed plies,
an interlayer disposed between said plies,
said interlayer being optically transparent and adhering to said plies so as to join them in a laminated construction,
a TOLED which is located so as to be in the field of vision of an operator of the vehicle and which is likewise disposed between said plies, and
transparent conductor means leading to said TOLED for activating said TOLED to generate light within said plies of the windshield to provide a head-up message or the like in the field of vision of such operator so the operator's eyes may always remain on the road ahead.
2. The display device of claim 1 wherein said interlayer includes inner and outer polymeric layers with said TOLED being sandwiched therebetween.
3. The display device of claim 1 wherein said TOLED carries a layer of pressure sensitive adhesive on one surface and is located between said interlayer and one said ply.
4. The display device of claim 3 wherein said plies are made of glass.
5. The display device of claim 4 wherein said TOLED is provided with transparent environmental barriers to moisture and/or oxygen to retain its integrity until such time as it is laminated between said plies.
6. The display device of claim 1 wherein the TOLED comprises a plurality of layers, including (a) an electron transporting layer, (b) a polymeric light-emitting layer, (c) a hole transporting layer, (d) a pair of flanking electrode layers, and (e) a pair of films

of polycarbonate which in turn flank said electrodes, all of which layers and films are optically transparent.

7. The display device in accordance of claim 6 wherein said polycarbonate films each have a thickness between about 0.1 and about 0.2 mm.

8. In accordance with claim 7 wherein at least one of said polycarbonate films is coated with a layer of ceramic barrier material.

9. The display device of the claim 8 wherein one of said polycarbonate films is coated with a layer of an acrylic polymer.

10. The display device of claim 1 wherein said conductor means includes a pair of conductors formed of transparent ITO.

11. The display device according to claim 10 wherein the conductors are elongated and extend from the TOLED to an edge of the windshield.

12. A motor vehicle windshield which comprises:
inner and outer plies of glass shaped to close a window opening in the front of an a motor vehicle,
a polymeric interlayer of transparent material securing said plies to each other,
a thin transparent display device located in juxtaposition with said interlayer in a generally central location between an upper edge and a lower edge of said windshield, which display device contains a plurality of pixels that emit light when activated,
transparent conductor means extending from said transparent display device to an edge of the windshield, and
means for connecting said conductor means to an electronic unit for sending signals to said display device to emit light and thereby create a head-up display at a location generally centrally of the motor vehicle operator's field of vision through the windshield toward the road ahead.

13. A method for presenting a head-up display to the operator of a motor vehicle in a manner so the operator's eyes never need to leave the road ahead, which method comprises:

providing a thin transparent display device at a location between inner and outer plies of glass shaped to constitute a motor vehicle windshield at a generally central location between an upper edge and a lower edge of said windshield, which display device contains a plurality of pixels that emit light when activated,

connecting the display device via transparent conductor means extending from said transparent display device to an edge of the windshield,

connecting said conductor means to an electronic unit, and

sending signals from said electronic to said display device to cause said display device to emit light and thereby create a head-up display at a location generally centrally of the motor vehicle operator's field of vision through the windshield toward the road ahead.